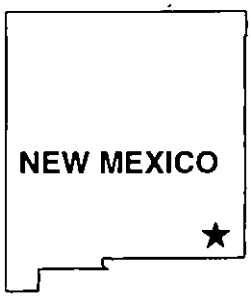
Waste Management Programmatic Environmental Impact Statement

The Waste Management PEIS and the Waste Isolation Pilot Plant Site



The Waste Isolation Pilot Plant (WIPP) is a DOE research and development facility authorized to demonstrate safe and permanent disposal of defense-generated transuranic waste (TRUW). If test demonstrations are successful and required permits are obtained, WIPP will become a permanent disposal site for TRUW. The Waste Isolation Pilot Plant site is located on 10,245 acres in southeastern New Mexico approximately 33 miles from Carlsbad. The WIPP facility is an integral part of DOE's long-term planning for radioactive waste disposal and is designed to isolate TRUW in vast salt deposits more than 2,000 feet beneath the New Mexico desert surface.

Background

The Waste Management Programmatic Environmental Impact Statement (WM PEIS) examines the environmental impacts of managing radioactive and hazardous wastes at Department of Energy (DOE) sites throughout the United States. Five waste types are considered: low-level mixed waste (LLMW), low-level waste (LLW), transuranic waste (TRUW), high-level waste (HLW), and hazardous waste (HW). The alternatives evaluated in the WM PEIS range from treatment, storage, and/or disposal at each site that generates waste to the consolidation of treatment, storage, and/or disposal facilities at one or a few DOE sites.

Of the 54 sites for which DOE has waste management responsibility, 17 are considered "major" DOE sites in the WM PEIS because they contain the bulk of the five waste types, have the capability for the future disposal of some waste types, have existing or planned major waste management facilities, or manage HLW. Therefore, under some alternatives, major sites may be candidates to treat, store, and/or dispose of wastes generated at other sites. The Waste Isolation Pilot Plant (WIPP) site does not currently manage waste, nor contain a waste inventory, but is considered in the WM PEIS as a potential geologic disposal site for TRUW from the other 16 major DOE sites.

In 1981, DOE issued a Record of Decision for the phased development of the WIPP disposal facility. In 1990, a subsequent Record of Decision was issued that called for the continuation of the phased development of WIPP. Before making a decision on whether or not to proceed to the WIPP disposal phase, DOE will prepare a second Supplemental EIS to address impacts associated with disposal at the site. Also, a series of regulatory and legislative requirements must be met before shipments of TRUW for disposal at WIPP could begin. DOE's current strategy is to have all TRUW meet the WIPP waste acceptance criteria established by DOE in consultation with the Environmental Protection Agency (EPA) and the State of New Mexico. Although these criteria are not yet final, they might require treatment of the TRUW prior to disposal. The WM PEIS only analyzes the role of the WIPP site with respect to the treatment of TRUW. The environmental impacts of TRUW disposal at WIPP will be evaluated in the second Supplemental EIS mentioned above. If certified as a TRUW disposal site by EPA, WIPP will operate as a repository disposing TRUW for approximately 30 years. At the end of that time, DOE will backfill and permanently seal the facility.

WM PEIS Alternatives—What Role Would the Waste Isolation Pilot Plant Play?

To assist DOE in making decisions about where to locate waste management functions, the WM PEIS considers four categories of alternatives (also called "management alternatives") for each type of waste:

- **No Action** alternatives involve the use of only currently existing or planned waste management facilities;
- **Decentralized** alternatives locate waste management facilities where waste is currently located or where it will be generated, treated, or disposed of in the future;
- **Regionalized** alternatives locate waste management facilities at several sites throughout the nation; and
- **Centralized** alternatives locate large waste management facilities at only one or two sites.

The existing and planned facilities used in the analysis are discussed in Chapter 6 through 10 of the WM PEIS.

The WM PEIS provides environmental information to be used in deciding where to locate waste management activities on a national basis. Subsequent site- or project-level assessments will be conducted prior to implementing these decisions. Local public input, compliance agreements, permitting requirements, or site-specific Records of Decision would be considered prior to implementation of any waste management alternative at a site.

The centralized alternative is the only alternative where WIPP would have a role in a waste management function covered by the WM PEIS, which would be the treatment of contact-handled TRUW. Under this alternative, WIPP would receive contact-handled TRUW from 16 DOE sites for treatment to meet Resource Conservation and Recovery Act (RCRA) Land Disposal Restriction levels. Remote-handled TRUW would be shipped to the Hanford Site, WA and the Oak Ridge Reservation, TN for treatment prior to disposal at WIPP. The Waste Isolation Pilot Plant's potential role in managing TRUW, as considered under each alternative, is summarized in Table 1.

Table 1: The Role of the Waste Isolation Pilot Plant (WIPP) Site in Transuranic Waste Management Alternatives

	NO ACTION	DECENTRALIZED	REGIONALIZED	CENTRALIZED
	Status quo. Wastes are treated, stored, and/or disposed of at each site using only existing or planned facilities.	*Wastes are treated, stored, and/or disposed of at sites where they are generated. Includes new facilities where needed.*	*Wastes are consolidated by waste type for treatment, storage, and/or disposal at an intermediate number of sites.*	*Wastes are consolidated by waste type for treatment, storage, and/or disposal at one or two sites.*
TRUW	Storage at 16 DOE sites is indefinite with no disposal at WIPP. WIPP receives no waste for treatment.	TRUW is processed at all 16 DOE sites, transferred to interim storage at 10 sites and then transported to WIPP. Disposal at WIPP is assumed. 100% of waste (23,860 shipments) received at WIPP for disposal would be from offsite.	TRUW is consolidated at 4 to 6 DOE sites for treatment and storage pending disposal. Disposal at WIPP is assumed. 100% of waste (17,030 to 20,080 shipments) received at WIPP for disposal would be from offsite.	16 DOE sites would ship all contact-handled TRUW to WIPP for treatment to RCRA Land Disposal Restriction levels. Remote-handled TRUW would be shipped to Hanford, WA and Oak Ridge Reservation, TN for treatment to RCRA Land Disposal Restriction levels. Disposal at WIPP is assumed. 100% of waste (20,500 shipments) received at WIPP would be from offsite for treatment and disposal.

Notes:

The number(s) in parentheses represent the estimated total number of incoming truck shipments per alternative at WIPP over 20 years.

RCRA = Resource Conservation and Recovery Act

The WM PEIS Analyzed These Site-Specific Impact Areas

- Human Health Risks
- Air Quality
- Water Resources
- Ecological
- Economic
- Population
- Environmental Justice
- Land Use
- Infrastructure
- Cultural Resources
- Costs

Potential Impacts Evaluated at the Waste Isolation Pilot Plant

The specific impacts at WIPP from treatment of contact-handled TRUW are discussed in detail in Chapter 8 of the WM PEIS (see text box above). Chapter 11 describes cumulative impacts, a combination of the WM PEIS impacts of the proposed activities added to impacts of other past, present and future site activities (see text box at right).

Table 2 presents estimates of potential public and worker impacts from various waste treatment, storage, and disposal activities. These impacts are expressed in terms of estimated potential fatalities. The basis for these estimates includes the following:

- Radiation and chemical exposure for workers handling waste and a population of approximately 99,900 living within a 50-mile radius of the site. These numbers are estimated for exposure over a 10-year period and are calculated over an average 70-year life span.
- Physical hazards to workers, such as construction accidents, estimated over a 20-year span of employment.

The WM PEIS Analyzed These Cumulative Impact Areas

- Offsite population human health risks
- Offsite maximally exposed individual health risks
- Non-involved worker health risks
- Air quality exceedances
- Infrastructure resources
- Socioeconomic impacts
- Total costs
- Transportation impacts

Table 2: The Potential Impacts of Treatment, Storage, and Disposal Activities at the Waste Isolation Pilot Plant

(Human Health and Economic Impacts)

TRUW

		No Action	Decentralized	Regionalized	Centralized
Fatalities:	Waste Management Worker*	—	—	—	~2
	Offsite Population (Public)**	—	—	—	~1
Benefits:	Average Regional Jobs/Year	—	—	—	2,046
	Average Regional Income/Year	—	—	—	$22.1M

Notes:
* Number of potential fatalities resulting from radiation (estimated over a 70-year life span due to 10-year exposure) and physical hazards (estimated over 20 years).
** Estimated number of potential fatalities resulting from radiation exposure (estimated over a 70-year life span due to 10-year exposure).
— = Action not applicable for this alternative
M = Million

In interpreting Table 2, it is important to note that the WM PEIS methods of analysis were intended to yield estimates that tend to overestimate the risk. This was done to ensure that DOE considered a reasonable range of possible health risks. In addition, the results do not include measures DOE could take to lessen the risks, such as substituting treatment methods, substituting rail transport for truck, or rotating workers to reduce risk of exposure. Where fatalities are reported as essentially zero (~0), this is not intended to imply that the risk is absolutely zero, but that it is unlikely there would be a single fatality. The site-specific fatality estimates can be found in the Volume II of the WM PEIS.

The average total number of jobs and regional income per year are presented in Table 2 for geographic areas that would be expected to experience economic benefit from selection of the alternatives over 20 years. The average jobs per year is the estimated numbers of newly created and existing full-time DOE waste management jobs and other full-time jobs within the region such as those in the retail, restaurant, and other service industries. On average, these jobs would be supported each year by DOE expenditures related to waste management activities for each alternative. Economic benefits were estimated based upon the anticipated residence of site employees within the region of influence comprised of six counties: Eddy, Otero, Chaves, and Lea counties in New Mexico and Culberson and Loving counties in Texas. Ninety percent of the site's employees reside in these counties.

Noteworthy impacts to the WIPP site include:

- The greatest human health impacts are to workers and are related to the waste volumes being handled at a site. In one alternative at WIPP, the volumes of TRUW are sufficiently large to result in one or more estimated fatalities, with physical accidents a more significant cause than exposure to radiation. Worker fatalities from treatment of TRUW in the centralized alternative were estimated to be two.

- Potential cancer fatalities in the offsite population were estimated to be one in the centralized alternative for TRUW. As noted in Chapter 8 of the WM PEIS, air quality may also be impaired in this alternative.

- The greatest number of annual regional jobs (2,046) and income ($22.1 million) would occur under the centralized alternative for the management of TRUW.

- All the TRUW alternatives could involve large numbers of shipments into the Waste Isolation Pilot Plant (17,030 to 23,860 shipments, as noted in Table 1).

To review the WM PEIS, visit the
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Carlsbad, NM 88220
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